

POSITION TITLE	Professor of Biomedical Engineering and Life Sciences		
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EDUCATION	Johns Hopkins University , Baltimore, Maryland USA Postdoc Training, Neuroscience and Biomedical Engineering, 2004-2010 Case Western Reserve University , Cleveland, Ohio USA Ph.D., Biomedical Engineering, 1999-2004 Tsinghua University , Beijing China M.S., Biomedical Engineering, 1996-1999 Zhejiang University , Hangzhou China B.S., Biomedical Engineering and Instrumentation, 1990-1995 with Minor in Computer Science and Engineering		
PROFESSIONAL EXPERIENCE	Employment Professor 8/10-Present Tsinghua University, China Research Fellow 10/04-6/10 Johns Hopkins University, USA Engineer 7/95-9/96 Center of Computing and Electronics, Ministry of Railway, China Scientific Membership Biophysical Society, Society of Neuroscience, Association for Research in Vision and Ophthalmology, IEEE-EBME, Sigma Xi Reviewer Annals of Biomedical Engineering (2003-), Proceedings of National Academy of Science (2006-), Journal of Pharmacological and Toxicological Methods (2009-), Journal of Healthcare Engineering (2010-) Other Services 2008 Session Chair, Gene Science, Engineering and Genomics, International Conference of Bioinformatics and Biomedical Engineering, Shanghai, China 2011 Local Committee Member, 17th International Symposium on Calcium-Binding Proteins and Calcium Function in Health and Disease (CaBP17), Beijing, China Ph.D. Students' Committee: HAN Jing(Peking Univ.); HE Jingquan(Peking Univ.); LI Wei; GE Song		

HONORS AND AWARDS

Key Faculty Support Plan, Tsinghua University, 2010
Whitaker Student Registration Grant, IEEE-EMBS, 2004
Student Mentorship Award, School of Graduate Studies, Case Western Reserve University 2004
Student Travel Award, Biomedical Engineering Society, 2003
Whitaker Foundation Traineeship, BME Department, Case Western Reserve University, 1999-2000
GuangHua Scholarship, Tsinghua University, 1998
Student Research Award, Zhejiang University, 1994
Excellent Student Scholarship, Zhejiang University, 1990-1994

PUBLICATIONS

Journal Articles

1. Wang P, Li R, Lin L and *Liu XD* (1998) Study on flexible neural network for odor recognition of electronic nose. **Pattern Recognition and Artificial Intelligence**, Vol. 4, 1998.
2. Kourennyi DE, *Liu XD* and Barnes S (2002) Modulation of rod photoreceptor potassium Kx current by divalent cations. **Annals of Biomedical Engineering** 30: 1196-1203. (selected by *Vir. J. Bio. Phys. Res. (2002) 4:11/MEMBRANE BIOPHYSICS*)
3. Kourennyi DE, *Liu XD*, Hart J, Mahmud F, Baldrige WH and Barnes S (2004). Reciprocal modulation of calcium dynamics at rod and cone photoreceptor synapses by nitric oxide. **Journal of Neurophysiology** 92: 477-83.
4. *Liu XD* and Kourennyi DE (2004) Effect of TEA on Kx channels and simulated light response in rod photoreceptors. **Annals of Biomedical Engineering** 32: 1428-42.
5. Sun H, *Liu XD*, Xiong Q, Shikano S and Li M (2006) Chronic inhibition of cardiac Kir2.1 and hERG potassium channels by celastrol with dual effects on both ion conductivity and protein trafficking. **Journal of Biological Chemistry** 281: 5877-5884. (selected as *Cover Story*)
6. Chen P, *Liu XD*, Wang B, Cheng G and Ping Wang (2009) A biomimetic taste receptor cell-based biosensor for electrophysiology recording and acidic sensation, **Sensors and Actuators, B: Chemical** 139: 576-583.
7. Chen P, *Liu XD*, Zhang W, Zhou J, Wang P, Yang W, and Luo J (2009) Modeling and simulation of ion channels and action potentials in taste receptor neurons, **Science China C Life Science** 11:1036-47. (Chinese Translation Published on 39: 149-160)
8. *Liu XD*, Yang PS, Yang W and Yue DT (2010) Enzyme-inhibitor-like tuning of Ca²⁺ channel connectivity with calmodulin, **Nature** 463: 968-972. (selected as Editor's Choice *Science Signaling*: N. R. Gough, Quantifying Interactions. *Sci. Signal.* 3, ec62 (2010); selected by *Faculty of 1000*, 2010)

International Conference Proceedings

1. *Liu XD* and Kourennyi DE (2004) Linear system analysis of ion channel modulation in rod photoreceptors under dim light conditions. Annual International Conference of the IEEE Engineering in Medicine and Biology - Proceedings, v 26 VI: 4037-40.
2. Chen P, Cheng G, Wang B, Wang P* and *Liu XD** (2008) Design of a novel acid-sensing biosensor based on taste neurons and LAPS. In: 2nd International Conference on Bioinformatics and Biomedical Engineering, iCBBE 2008, pp 1561-1564 (*corresponding authors)

Conference Abstracts

1. *Liu XD* and Kourennyi DE (2000) Modeling of effects of zinc on salamander rod photoreceptor potassium Kx current. *Annals. Biomed. Eng.* 28:S114.
2. *Liu XD* and Kourennyi DE (2001) Development of a microscopic electrochemical sensor for nitric oxide. *Annals Biomed. Eng.* 29:S131.
3. Kourennyi DE, *Liu XD* (2001) Effects of nitric oxide on photoreceptor light response: modeling study. *Invest. Ophthalmol. Vis. Sci.* 42:S369.
4. *Liu XD* and Kourennyi DE (2003) Concentration dependent effects of nitric oxide on rod photoreceptors. *Invest. Ophthalmol. Vis. Sci.* 44:S4160.
5. Kourennyi DE and *Liu XD* (2003) Effect of TEA on Kx channels and simulated light response in rod photoreceptors. *BMES*.
6. *Liu XD*, Ulatowski L and Kourennyi DE (2003) Simulation of the Light Response in Patch Clamp Recordings from Photoreceptors. *BMES*.
7. *Liu XD* and Kourennyi DE (2003) Nitric Oxide effects on simulated light response of photoreceptors. *BMES*.
8. *Liu XD* and Kourennyi DE (2004) D-S-Nitrosocysteine inhibits the calcium channels in rod photoreceptors. *Invest Ophthalmol Vis Sci.* 45:S1340.
9. *Liu XD*, Sun H and Li M (2007). A Novel Family of KCNQ/M Channel Potentiators Discovered by Compound Screening. *Biophysical Society Annual Meeting*.
10. *Liu XD*, Yang PS and Yue DT (2008). Modulation of L-type Ca Channels by the Distal C-terminal of $\text{Ca}_v1.4$: Simultaneous Effects on Ca^{2+} -dependent Inactivation and Voltage-dependent Activation. *Biophysical Society Annual Meeting*.
11. Chen P, Yang W, Wang P, Luo J and *Liu XD* (2008) Temporal encoding of sour taste by ASIC and PKDL: a computational study, *Society of Neuroscience Annual Meeting*.
12. *Liu XD*, Yang PS, Wu V and Yue DT (2009), $\text{Ca}_v1.4$ C-tail Segment (ICDI) Inhibits Ca_v Channel Inactivation by Competing with Calmodulin-Resolution by Holochannels and Calmodulin FRET Sensors, *Biophysical Society Annual Meeting*.
13. *Liu XD*, Yang PS, Wu V, Yang W and Yue DT (2009), The distal carboxy tail of Ca^{2+} channels retunes their calmodulin sensitivity into the neurobiological range, *Society of Neuroscience Annual Meeting*.
14. Chen P, Yang W, Wang P, Luo J, Zhao J and *Liu XD* (2009), PKDL channels of TRPP family sensing the offset of acid stimuli, *Society of Neuroscience Annual Meeting*.
15. *Liu XD*, Yang PS, Yang W and Yue DT (2010), Enzyme-inhibitor-like tuning of calcium channel connectivity with calmodulin, *Biophysical Society Annual Meeting*.

Book Chapter

Liu XD and Bai J. Medical Information System for Telemedicine. Chapter 7 in *Introduction to Telemedicine*, 2000, Tsinghua University Press, ISBN:7302040494

PRESENTATIONS AND TALKS

1. Modeling of effect of nitric oxide on photoreceptor light response. *Canadian Physiological Society Annual Meeting*, Mont Tremblant, Canada, January 2001.
2. Nitric oxide effects on simulated light response of photoreceptors. *Biomedical Engineering Society Annual Meeting*, Nashville, TN, October 2003.
3. Modulation of ion channels in photoreceptors. *Neurological Sciences Institute*, OSHU, Portland,

OR August 2004.

4. Chemical modulation of K^+ channels. Retina Group, University of Pennsylvania, Philadelphia, PA March 2006.
5. Modulation of ion channels: pharmacological and genetic perturbation of membrane excitability. Department of Biomedical Engineering, Zhejiang University, Hangzhou, China May 2008.
6. Distal carboxy tails and apoCaM vie for Ca channels. Center of Cell Dynamics, Johns Hopkins University, Baltimore, MD May 2009.
7. Tuning calcium channels with tails and calmodulin: convergence meets divergence. Physiology Department, University of Texas Southwestern Medical Center, Dallas, TX January 2010
8. Enzyme-inhibitor-like tuning of calcium channel connectivity with calmodulin. Biophysical Society 54th Annual Meeting, San Francisco, CA February 2010
9. Sensing with ion channels. Department of Biomedical Engineering, Tsinghua University, Beijing, China March 2010
10. Competitive tuning of calcium dependent inactivation: an inspiration from calcium channels in sensory receptors. School of Medicine, Zhejiang University, Hangzhou, China March 2010
11. A tale of tails: tuning Ca^{2+} channels by competing with calmodulin. School of Life Sciences, Peking University, Beijing, China March 2010
12. Genetically encoded FRET sensors in discovering convergent mechanisms of Ca^{2+} channels in live cells. 1st Sino-America Advanced Sensors and Bio-Inspired Technologies Workshop, Shanghai, China November 2010
13. A tale of tails: a convergent modulation of Ca^{2+} channels by diverse termini. School of Life Sciences, Tsinghua University. December 2010
14. Sensory and transmembrane signaling by ion channels. School of Aerospace, Tsinghua University. December 2010